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Panel B: Providing a More Reliable Water Supply for California

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A consistent finding of our independent, interdisciplinary research over the last several years is that the single biggest issue for California water supply reliability is Delta conveyance.[1] The Delta is a precarious hub for about 30 percent of the water supplies for cities and suburbs in the Bay Area and Southern California and farms in the San Joaquin Valley. Fragile Delta levees and an imperiled ecosystem both contribute to increasing risks to water supply reliability. Building some form of alternate conveyance, whether a canal around the Delta or a tunnel underneath it, should be part of the Delta Plan. This is the best way to simultaneously meet the co-equal goals of improving water supply reliability and restoring the health of the Delta ecosystem.

In our most recent work, we looked explicitly at the role conservation could play in contributing to Delta water management.[2] We found that a 30% reduction in per capita urban water use from 2000 levels – down to 155 gallons per capita per day – would make a significant difference. By mid-century, with a state population of roughly 65 million residents, this could reduce urban water demands south and west of the Delta by roughly 3 million acre-feet. Reduced urban demands would free up water for other uses, including environmental flows or agricultural irrigation. Without urban conservation, agriculture is likely to bear the brunt of any cutbacks required to increase environmental flows in the Delta, because urban users can afford to pay more for water, including more costly local alternatives like recycling and desalination.

We also looked at the role of the Delta as a water supply hub in the event that California faces a drier future, as predicted by some climate models. The costs of losing the ability to move water from north to south and east to west through the Delta become much higher if California becomes a drier place. In other words, new conveyance is even more important, even if California is successful at promoting significant urban conservation.

New conveyance and more urban conservation are not the only tools needed to promote water supply reliability. Two other priorities are improved groundwater management and further development of water markets.

Groundwater depletion in some areas south of the Delta, particularly the Tulare Basin, is causing significant conflicts among water users and threatening infrastructure such as the California Aqueduct. These problems are likely to grow with reduced Delta exports and more frequent droughts. We suggest that the State Water Resources Control Board (SWRCB) launch a process requiring groundwater users in

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[1] Lund, Hanak, Fleenor, Howitt, Mount, and Moyle (2007), *Envisioning Futures for the Sacramento-San Joaquin Delta*; Lund, Hanak, Fleenor, Bennett, Howitt, Mount, and Moyle (2008), *Comparing Futures for the Sacramento-San Joaquin Delta*; Hanak, Lund, Dinar, Gray, Howitt, Mount, Moyle, Thompson (2011), *Managing California's Water: From Conflict to Reconciliation*, all available at www.ppic.org.

[2] *Managing California's Water: From Conflict to Reconciliation*, chapter 6.

this region to develop a sustainable basin management plan. The reasonable use doctrine of the state constitution provides authority for this action.[3]

Water markets are a flexible, equitable, and economically efficient way to reallocate some water from lower-valued uses (mainly in farming) to higher-valued uses in the agricultural and urban sectors. The market can help reallocate water during droughts and accommodate long-term shifts in demand. There is ample scope for such transfers: in 2005, over 60% of "net" water use in the agricultural sector – the amount consumed by crops – was devoted to irrigated pasture and field crops such as alfalfa, corn, cotton, and rice. Together, these crops generated only 14% of gross crop revenues.[4] California law already treats water conservation for purposes of water marketing as a reasonable use of water, to help encourage such transfers. But the water market has stagnated over the past decade due to numerous institutional obstacles. In addition to streamlining the transfer approval process at the state level, the SWRCB could assert the reasonable use doctrine to: (1) promote the development of transparent local rules for groundwater banking – a key element of many water transfers; and (2) require irrigation districts to allow farmers to participate in the water market. Farmers manage water as a business input; to make sure they are acting on the right signals, they need access to the market. Of course, the water market will be severely constrained without the availability of Delta conveyance, highlighting once again the importance of including new conveyance – paid for by water users – as an element in the Delta Plan.

[3] *Managing California's Water: From Conflict to Reconciliation*, chapter 7.
[4] *Managing California's Water: From Conflict to Reconciliation*, chapter 2.